

IN THE CLAIMS:

Please amend Claims 1-3, 6, 8-10, 13, 24, and 25 as follows.

1. (Currently Amended) A speech signal processing apparatus comprising:

HMM learning means for computing HMMs of speech segments with ~~phonetic label~~ information indicating a phonetic environment in a speech database;

segment recognition means for performing segment recognition of the speech segments in the speech database on the basis of the HMMs; and

registration means for registering a speech segment in a segment dictionary, in a case where the recognition result of the speech segment by said segment recognition means corresponds to the ~~phonetic label~~ information indicating the phonetic environment of the speech segment.

2. (Currently Amended) The apparatus according to claim 1, wherein the ~~phonetic label~~ information indicating the phonetic environment is a diphone label, and said segment recognition means categorizes speech segments into four categories CC, CV, VC, and VV (C: a consonant, V: a vowel), and performs segment recognition in each category.

3. (Currently Amended) The apparatus according to claim 1, wherein said registration means comprises:

pattern storage means which has allowable ~~phonetic label~~ patterns of information indicating the phonetic environment, and

said registration means checks if a ~~phonetic label~~ information indicating the phonetic environment of a speech segment matches with one of the allowable ~~phonetic label~~ patterns of information indicating the phonetic environment even if the ~~phonetic label~~ information indicating the phonetic environment is not equal to the recognition result of said segment recognition means.

4. (Previously Presented) A speech signal processing apparatus comprising:
speech segment search means for searching a speech database for speech segments that satisfy a phonetic environment;

HMM learning means for computing HMMs of phonemes on the basis of a search result of said speech segment search means;

segment recognition means for performing segment recognition of the speech segments on the basis of the HMMs of the phonemes; and

registration segment means for determining and registering a speech segment in a segment dictionary when the number of speech segments recognized by said segment recognition means is not less than a predetermined value.

5. (Previously Presented) The apparatus according to claim 4, wherein said registration segment means registers a speech segment in the segment dictionary if at least a vowel part of the speech segment is correctly recognized, even when the number of speech segments recognized by said segment recognition means is not more than a predetermined value.

6. (Currently Amended) The apparatus according to claim 1, wherein said segment recognition means computes likelihoods of speech segments of an identical ~~phonetic label~~ information indicating the phonetic environment, and

said registration means registers, in the segment dictionary, speech segments having maximum likelihoods or having likelihoods not less than a predetermined value.

7. (Previously Presented) The apparatus according to claim 6, wherein said registration means registers, in the segment dictionary, speech segments having upper values obtained by normalizing the likelihoods by durations of the speech segments or likelihoods having the values not less than a predetermined value.

8. (Currently Amended) A speech signal processing method comprising:
an HMM learning step of computing HMMs of speech segments with ~~phonetic label~~ information indicating a phonetic environment in a speech database;
a segment recognition step of performing segment recognition of the speech segments in the speech database on the basis of the HMMs; and
a registration step of registering a speech segment in a segment dictionary, in a case where the recognition result of the speech segment in said segment recognition step corresponds to the ~~phonetic label~~ information indicating the phonetic environment of the speech segment.

9. (Currently Amended) The method according to claim 8, wherein the ~~phonetic label~~ information indicating the phonetic environment is a diphone label, and said segment recognition step categorizes speech segments into four categories CC, CV, VC, and VV (C: a consonant, V: a vowel), and includes the step of performing segment recognition in each category.

10. (Currently Amended) The method according to claim 8, wherein said registration step comprises:

a pattern storage step of registering allowable ~~phonetic label~~ patterns of information indicating the phonetic environment, and

said registration step includes a step of checking whether the ~~phonetic label~~ information indicating the phonetic environment of a speech segment matches with one of the allowable ~~phonetic label~~ patterns of information indicating the phonetic environment even if the ~~phonetic label~~ information indicating the phonetic environment is not equal to the result in said segment recognition step.

11. (Previously Presented) A speech signal processing method comprising:

a speech segment search step of searching a speech database for speech segments that satisfy a phonetic environment;

an HMM learning step of computing HMMs of phonemes on the basis of a search result in said speech segment search step;

a segment recognition step of performing segment recognition of the speech segments on the basis of the HMMs of the phonemes; and

a registration segment step of determining and registering a speech segment in a segment dictionary when the number of speech segments recognized in said segment recognition step is not less than a predetermined value.

12. (Previously Presented) The method according to claim 11, wherein said registration segment step includes a step of registering a speech segment in the segment dictionary if at least a vowel part of the speech segment is correctly recognized, even when the number of speech segments recognized in said segment recognition step is not more than a predetermined value.

13. (Currently Amended) The method according to claim 8, wherein said segment recognition step includes a step of computing likelihoods of speech segments of an identical ~~phonetic label~~ information indicating the phonetic environment, and

said registration step includes a step of registering, in the segment dictionary, speech segments having maximum likelihoods or having likelihoods not less than a predetermined value.

14. (Previously Presented) The method according to claim 13, wherein said registration step includes a step of registering, in the segment dictionary, speech segments having

upper values obtained by normalizing the likelihoods by durations of the speech segments or likelihoods having the values not less than a predetermined value.

15. (Previously Presented) A computer readable storage medium storing a program for implementing the method according to claim 8.

16. (Previously Presented) A speech synthesis apparatus comprising:
speech synthesis means for synthesizing speech using the segment dictionary made by the speech signal processing apparatus according to claim 1.

17-21. (Cancelled)

22. (Previously Presented) A speech synthesis method comprising:
a speech synthesis step of synthesizing speech using the segment dictionary made by the speech signal processing method according to claim 8.

23. (Previously Presented) A computer readable program storing a program for implementing the method according to claim 22.

24. (Currently Amended) A speech signal processing apparatus comprising:
HMM learning means for computing HMMs of speech segments with ~~phonetic~~
~~label~~ information indicating a phonetic environment in a speech database;

segment recognition ~~means~~ means for performing segment recognition of the speech segments in the speech database on the basis of the HMMs;

judgment means for judging whether the result of the segment recognition corresponds to the ~~phonetic label~~ information indicating the phonetic environment of a speech segment; and

storage means for storing the result of the judgment judged by said judgment means associated with the speech segment.

25. (Currently Amended) A speech signal processing method comprising:

an HMM learning step of computing HMMs of speech segments with ~~phonetic label~~ information indicating a phonetic environment in a speech database;

a segment recognition step of performing segment recognition of the speech segments in the speech database on the basis of the HMMs;

a judgment step of judging whether the result of the segment recognition corresponds to the ~~phonetic label~~ information indicating the phonetic environment of a speech segment; and

a storage step of storing the result of the judgment judged in said judgment step associated with the speech segment.

26. (Previously Presented) A computer readable program storing a program for implementing the method according to claim 25.